


		NTSB ID: DEN02LA019		Aircraft Registration Number: N902AM	
		Occurrence Date: 01/11/2002		Most Critical Injury: None	
		Occurrence Type: Accident		Investigated By: NTSB	
Location/Time					
Nearest City/Place Aurora	State CO	Zip Code 80010	Local Time 0840	Time Zone MST	
Airport Proximity: Off Airport/Airstrip		Distance From Landing Facility:		Direction From Airport:	
Aircraft Information Summary					
Aircraft Manufacturer McDonnell Douglas		Model/Series MD 902		Type of Aircraft Helicopter	
Sightseeing Flight: No			Air Medical Transport Flight: No		
Narrative					
<p>Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:</p> <p>On January 11, 2002, at approximately 0840 mountain standard time, a McDonnell Douglas MD 902 helicopter, N902AM, operated by MD Helicopters, was substantially damaged during a hard landing in a field near Aurora, Colorado. The flight instructor, a pilot receiving instruction, and one passenger were not injured. Visual meteorological conditions prevailed, and no flight plan was filed for this local training flight being conducted under Title 14, CFR Part 91. The flight originated from Centennial Airport, Englewood, Colorado, at approximately 0750.</p> <p>According to the instructor, he was conducting transition training and was demonstrating emergency procedures on anti-torque malfunctions and loss of thrust/fixed pedal settings. After reaching final approach at approximately 80 knots forward airspeed, and at approximately 100 feet above ground level, he began to demonstrate how to complete an approach with a loss of directional control or "Anti-Torque Failure- Fixed Thruster Setting." He identified an intended termination area, and established the helicopter on a "shallow" approach angle with a deceleration attitude of approximately 15 to 20 degrees nose up and approximately 300 feet per minute rate of descent. The flight profile "appeared normal" until about 50 to 60 feet above ground level when the helicopter started to descend at a higher than desired rate for demonstration. The pilot applied collective lever control and a shudder was felt in the rotor system, followed by an increase in descent rate. Collective lever application could not arrest the descent. The helicopter struck the ground hard in a nose high attitude, ballooned into the air approximately 3 to 5 feet and slowly rotated approximately 360 degrees. The "thruster" was jammed in the neutral position and the "fan would stall making popping sounds," but he had no problem landing the helicopter from a hover with power. The helicopter sustained substantial damage to the Notar (No Tail Rotor) Anti-Torque rotating thruster cone, the aft cross tube, and both landing gear skids.</p> <p>The pilot stated that he encountered "vortex-ring-state" while trying to slow the helicopter, and that it "put me on the ground at a very high rate of descent." The initial higher rate of descent may have been due to the higher density altitude at the training site than is normally encountered at his home station in Mesa, Arizona.</p> <p>At 0853, the reported weather at Centennial Airport (APA), Englewood, Colorado (approximately 12 nautical miles west of the accident site, and at an elevation of 5,883 feet msl) was, wind, 220 degrees at 8 knots; visibility, 10 statute miles; sky condition, few at 12,000 feet; temperature, 7 degrees C. (44.6 degrees F.); dew point, minus 12 degrees C. (10.4 degrees F.); altimeter setting, 30.24. The calculated density altitude was 6,022 feet msl.</p>					
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		Occurrence Type: Accident			
Landing Facility/Approach Information					
Airport Name	Airport ID:	Airport Elevation Ft. MSL	Runway Used	Runway Length	Runway Width
Runway Surface Type: Unknown					
Runway Surface Condition: Unknown					
Type Instrument Approach: Unknown					
VFR Approach/Landing: Unknown					
Aircraft Information					
Aircraft Manufacturer McDonnell Douglas		Model/Series MD 902		Serial Number 900-00092	
Airworthiness Certificate(s): Normal					
Landing Gear Type: Skid					
Homebuilt Aircraft? No	Number of Seats: 5	Certified Max Gross Wt. 6250 LBS		Number of Engines: 2	
Engine Type: Turbo Shaft	Engine Manufacturer: Pratt & Whitney		Model/Series: PCE-BG0027	Rated Power: 800 HP	
- Aircraft Inspection Information					
Type of Last Inspection 100 Hour	Date of Last Inspection 01/2002	Time Since Last Inspection 38.01 Hours		Airframe Total Time 38.01 Hours	
- Emergency Locator Transmitter (ELT) Information					
ELT Installed? No	ELT Operated? No	ELT Aided in Locating Accident Site? No			
Owner/Operator Information					
Registered Aircraft Owner Zion Credit Corporation		Street Address 37 West, 100 South			
		City Salt Lake City	State UT	Zip Code 84101	
Operator of Aircraft MD Helicopters		Street Address 4555 E McDowell Rd			
		City Mesa	State AZ	Zip Code 85215	
Operator Does Business As:			Operator Designator Code:		
- Type of U.S. Certificate(s) Held: None					
Air Carrier Operating Certificate(s):					
Operating Certificate:			Operator Certificate:		
Regulation Flight Conducted Under: Part 91: General Aviation					
Type of Flight Operation Conducted: Instructional					
<div style="display: flex; justify-content: space-between;"> FACTUAL REPORT - AVIATION Page 2 </div>					

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First Pilot Information																																																																																				
Name		City		State	Date of Birth																																																																															
On File		On File		On File	On File																																																																															
					Age																																																																															
					41																																																																															
Sex: M	Seat Occupied: Left	Principal Profession: Civilian Pilot		Certificate Number: On File																																																																																
Certificate(s): Flight Instructor; Commercial																																																																																				
Airplane Rating(s): Single-engine Land																																																																																				
Rotorcraft/Glider/LTA: Helicopter																																																																																				
Instrument Rating(s): Helicopter																																																																																				
Instructor Rating(s): Helicopter																																																																																				
Type Rating/Endorsement for Accident/Incident Aircraft? No				Current Biennial Flight Review? 02/2000																																																																																
Medical Cert.: Class 2		Medical Cert. Status: Valid Medical--no waivers/lim.		Date of Last Medical Exam: 08/2001																																																																																
<table border="1"> <tr> <th rowspan="2">- Flight Time Matrix</th> <th rowspan="2">All A/C</th> <th rowspan="2">This Make and Model</th> <th rowspan="2">Airplane Single Engine</th> <th rowspan="2">Airplane Multi-Engine</th> <th rowspan="2">Night</th> <th colspan="2">Instrument</th> <th rowspan="2">Rotorcraft</th> <th rowspan="2">Glider</th> <th rowspan="2">Lighter Than Air</th> </tr> <tr> <th>Actual</th> <th>Simulated</th> </tr> <tr> <td>Total Time</td> <td>9436</td> <td>229</td> <td></td> <td></td> <td>2624</td> <td>5</td> <td>200</td> <td>9419</td> <td></td> <td></td> </tr> <tr> <td>Pilot In Command(PIC)</td> <td>9200</td> <td>220</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>9200</td> <td></td> <td></td> </tr> <tr> <td>Instructor</td> <td>6307</td> <td>105</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>6307</td> <td></td> <td></td> </tr> <tr> <td>Last 90 Days</td> <td>146</td> <td>86</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>146</td> <td></td> <td></td> </tr> <tr> <td>Last 30 Days</td> <td>37</td> <td>49</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>36</td> <td></td> <td></td> </tr> <tr> <td>Last 24 Hours</td> <td>3</td> <td>3</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>3</td> <td></td> <td></td> </tr> </table>						- Flight Time Matrix	All A/C	This Make and Model	Airplane Single Engine	Airplane Multi-Engine	Night	Instrument		Rotorcraft	Glider	Lighter Than Air	Actual	Simulated	Total Time	9436	229			2624	5	200	9419			Pilot In Command(PIC)	9200	220						9200			Instructor	6307	105						6307			Last 90 Days	146	86						146			Last 30 Days	37	49						36			Last 24 Hours	3	3						3		
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Seatbelt Used? Yes		Shoulder Harness Used? Yes		Toxicology Performed? No																																																																																
				Second Pilot? Yes																																																																																
Flight Plan/Itinerary																																																																																				
Type of Flight Plan Filed: None																																																																																				
Departure Point		State	Airport Identifier	Departure Time	Time Zone																																																																															
Englewood		CO	APA	0750	MST																																																																															
Destination		State	Airport Identifier																																																																																	
Local Flight			APA																																																																																	
Type of Clearance: None																																																																																				
Type of Airspace: Class E																																																																																				
Weather Information																																																																																				
Source of Briefing: Commercial Weather Service																																																																																				
Method of Briefing: Unknown																																																																																				


 National Transportation Safety Board FACTUAL REPORT AVIATION			NTSB ID: DEN02LA019		
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			Occurrence Type: Accident		

Weather Information					
WOF ID	Observation Time	Time Zone	WOF Elevation	WOF Distance From Accident Site	Direction From Accident Site
APA	0853	MST	5883 Ft. MSL	12 NM	80 Deg. Mag.
Sky/Lowest Cloud Condition: Scattered			150 Ft. AGL	Condition of Light: Day	
Lowest Ceiling: Broken			250 Ft. AGL	Visibility: 10 SM	Altimeter: 30.24 "Hg
Temperature: 3 °C	Dew Point: -12 °C	Wind Direction: 220		Density Altitude: 5547 Ft.	
Wind Speed: 8	Gusts:	Weather Conditions at Accident Site: Visual Conditions			
Visibility (RVR): Ft.	Visibility (RVV)	SM	Intensity of Precipitation:		
Restrictions to Visibility: None					
Type of Precipitation: None					

Accident Information					
Aircraft Damage: Substantial		Aircraft Fire: None		Aircraft Explosion: None	
Classification: U.S. Registered/U.S. Soil					

- Injury Summary Matrix	Fatal	Serious	Minor	None	TOTAL
First Pilot					
Second Pilot				1	1
Student Pilot					
Flight Instructor				1	1
Check Pilot					
Flight Engineer					
Cabin Attendants					
Other Crew					
Passengers				1	1
- TOTAL ABOARD -				3	3
Other Ground					
- GRAND TOTAL -				3	3

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Administrative Information		
Investigator-In-Charge (IIC) James F. Struhsaker		
Additional Persons Participating in This Accident/Incident Investigation: Bruce Hanson FAA FSDO 26805 E. 68th Ave, #200 Denver, CO 80249		
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